10044310

FILE 'CAPLUS' ENTERED AT 16:51:35 ON 24 OCT 2003
L1 524 PROSTAGLAND? (S) (LC/MS OR "LIQUID CHROMATOGRAHY" OR (MASS (2A) SPECTR?))
L2 11 L1 AND ACIDIC
L3 4 L1 AND BASIC
L4 35 L1 AND (TANDEM (3A) MASS)
L5 0 L4 AND MS4
L6 1 L1 AND ((DILUT? OR ADD?) (5A) BASIC)
L7 0 LC/MS (S) ((DILUT? OR ADD?) (5A) BASIC)
L8 0 LC/MS AND ((DILUT? OR ADD?) (5A) BASIC)
L9 23 (LC/MS OR TANDEM) AND ((DILUT? OR ADD?) (5A) BASIC)
L10 1 PROSTAGLANDIN? (S) ((DILUT? OR ADD) (5A) (BASE? OR BASIC))
L11 139 PROSTAGLANDIN? (S) BASIC
L12 9 S (PROSTAGLANDIN? (S) (BASIC OR AMMON?)) AND (LC/MS OR CHROMATO
L13 9 (PROSTAGLANDIN? (S) (BASIC OR AMMON?)) AND ("LC/MS" OR CHROMATOGR? OR SPECTR? OR TANDEM)
L14 0 PROSTAGLANDIN? AND (TANDEM (S) (TETRA? OR QUADRA? OR "MS4"))
L15 3079 PROSTAGLANDIN? AND (TANDEM OR TETRA? OR QUADRA? OR "MS4")
L16 28 PROSTAGLANDIN? (S) (TANDEM (4A) MASS)
L17 0 L16 AND "MS4"
L18 67 PROSTAGLANDIN? (S) (("LC" OR CHROMATOGR?) (S) ACID?)
L19 21 S L18 AND ("MS" OR MASS)

d l2 ibib abs 1-11

L2 ANSWER 1 OF 11 CAPLUS COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 2002:539913 CAPLUS
DOCUMENT NUMBER: 137:73800
TITLE: Liquid chromatography-electrospray ionization mass spectrometry method for separating and identifying prostaglandins
INVENTOR(S): Singh, Rajendra; Zhou, Haihong
PATENT ASSIGNEE(S): Surromed, Inc., USA
SOURCE: PCT Int. Appl., 18 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
PATENT NO. KIND DATE APPLICATION NO. DATE
--- --- --- --- ---
WO 2002055991 A2 20020718 WO 2002-US770 20020111
WO 2002055991 A3 20020926
US 2002146838 A1 20021010 US 2002-44310 20020111
PRIORITY APPLN. INFO.: US 2001-261577P P 20010112

AB A liq. chromatog.-electrospray ionization mass spectrometry method is capable of sepg. and identifying different prostaglandin isomers, including PGD2 and PGE2. Unlike traditional as chromatog. methods, little sample prepn. and no derivatization are required. The chromatog. is performed under acidic conditions that are optimal for sepg. the isomers. A basic sheath flow liq. is added to the chromatog. eluent, resulting in high ionization efficiency when the electrospray ionization is performed in neg. ion mode. Addnl., by altering the energy at which the ionization is performed, tandem mass spectra of the two isomers can be made to differ as a result of the different relative energies of the two isomers.

L2 ANSWER 2 OF 11 CAPLUS COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 1993:487069 CAPLUS
DOCUMENT NUMBER: 119:87069
TITLE: Renal vasodilator activity of 5,6-epoxyeicosatrienoic acid depends upon conversion by cyclooxygenase and release of prostaglandins
AUTHOR(S): Carroll, Mairead A.; Balazy, Michael; Margiotta, Patricia; Falck, J. R.; McGiff, John C.
CORPORATE SOURCE: Dep. Pharmacol., New York Med. Coll., Vallhalla, NY, 10595, USA
SOURCE: Journal of Biological Chemistry (1993), 268(17), 12260-6
CODEN: JBCHA3; ISSN: 0021-9258
DOCUMENT TYPE: Journal
LANGUAGE: English
AB 5,6-Epoxyeicosatrienoic acid (5,6-EET), a renal vasodilator metabolite of arachidonic acid via cytochrome P 450 (P 450) requires cyclooxygenase for expression of its vasoactivity as the responses are inhibited by indomethacin and other aspirin-like drugs. Thus, the metab. of 5,6-EET by rabbit kidneys was examd. in order to characterize those metabolites that may account for its vasoactivity. 5,6-EET was injected close-arterially into the rabbit isolated Krebs-Henseleit perfused kidney, preconstricted with phenylephrine, and the effluent collected throughout the response period. Basal collections, following injection of 100 .mu.L of vehicle, were made at 20-min intervals before each 5,6-EET injection. Prior to acidic extn., deuterated 6-keto-PGF1.alpha. and PGE2 were added as internal stds. The exts. were sepd. by TLC and the prostaglandins were derivatized for gas chromatog.-mass spectrometry anal. using a neg. ion chem. ionization mode. Injection of 0.5, 1, 5, 10, and 20 .mu.g of 5,6-EET resulted in dose-related decreases in perfusion pressure of 6, 12, 26, and 27 mmHg, resp. Basal perfusates contained 6-keto-PGF1.alpha. and PGE2, levels of which were increased .gtoreq. 2-fold by 5,6-EET. Perfusates, collected during 5,6-EET administration, also contained 6-hydroxy-PGI1 and 5,6-EET. Perfusates collected during 5,6-EET administration also contained 5-hydroxy-PGI1 and 5,6-epoxy-PGE1, cyclooxygenase metabolites of 5,6-EET. This is the first report of the recovery and identification of these 5,6-EET metabolites from an intact organ. Since the responses to 5,6-EET are endothelial-dependent, the profile of eicosanoids formed following incubation of 5,6-EET with cultured bovine pulmonary endothelial cells was studied. Endothelial cells metabolized 5,6-EET to products with a similar radioactive profile on reverse-phase HPLC chromatog. compared to kidney perfusates. The vasodilator activities of 5,6-

epoxy-PGE1 and 5-hydroxy-PGI1 (chem. synthesized from PGE2 and PGF2.alpha., resp.) were compared with PGE2 andPGI2 in the rabbit kidney. The 5,6-epoxy-PGE1 was equipotent to PGE2 as a vasodilator. The ED50 values for 5,6-EET, 5,6-epoxy-PGE1, and PGE2 were 4.69, 0.43, and 0.42 nmol, resp. Although PGI2 was a potent vasodilator (ED50, 0.24 nmol), 5-hydroxy-PGI1 was devoid of activity. Thus, the cyclooxygenase-dependent vasoactivity of 5,6-EET in the rabbit kidney has 2 components: release of vasodilator PGs, PGE2 and PGI2, and metab. of 5,6-EET to a PG analog, 5,6-epoxy-PGE1.

L2 ANSWER 3 OF 11 CAPLUS COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 1991:157279 CAPLUS
DOCUMENT NUMBER: 114:157279
TITLE: Quantification of the major urinary metabolite of prostaglandin D2 by a stable isotope dilution mass spectrometric assay
AUTHOR(S): Morrow, Jason D.; Prakash, Chandra; Awad, Joseph A.; Duckworth, Tanya A.; Zackert, William E.; Blair, Ian A.; Oates, John A.; Roberts, Jackson, II
CORPORATE SOURCE: Dep. Pharmacol., Vanderbilt Univ., Nashville, TN, 37232-6602, USA
SOURCE: Analytical Biochemistry (1991), 193(1), 142-8
CODEN: ANBCA2; ISSN: 0003-2697
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The major urinary metabolite of PGD2, 9.alpha.,11.beta.-dihydroxy-15-oxo-2,3,18,19-tetranorprost-5-ene-1,20-dioic acid, was detd. by gas chromatog./neg. ion chem. ionization mass spectrometry. This metabolite was chem. synthesized (C. Prakash, et al., 1988) and converted to an 18O4-labeled deriv. for use as an internal std. Novel derivatization and purifn. procedures were incorporated in the assay taking advantage of the ability of the lower side chain of this mol. to undergo cyclization at acidic pH to form a hemiketal, .gamma.-lactone, and uncyclization with methoximation. Precision of the assay is .+-.7% and accuracy is 96%. The lower limit of sensitivity is approx. 50 pg. Normal levels for the urinary excretion of this metabolite in adults was 1.08 ng/mg creatinine. Substantial elevations in the urinary excretion in the metabolite were found in clin. situations in which PGD2 is released in increased quantities. Thus, this assay provides a sensitive and accurate method to assess endogenous prodn. of PDD2 as a means to explore the pathophysiol. role of PGD2 in human disease.

L2 ANSWER 4 OF 11 CAPLUS COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 1989:205927 CAPLUS
DOCUMENT NUMBER: 110:205927
TITLE: Dimethylisopropylsilyl ether derivative in gas chromatography/mass spectrometry of 2,3-dinor-6-keto-prostaglandin F1a
AUTHOR(S): Ishibashi, Masataka; Watanabe, Keiko; Oyama, Yoshiharu; Mizugaki, Michinao; Harima, Noriaki
CORPORATE SOURCE: Res. Lab., Nippon Kayaku Co., Tokyo, 115, Japan
SOURCE: Chemical & Pharmaceutical Bulletin (1989), 37(2), 539-41
CODEN: CPBTAL; ISSN: 0009-2363

DOCUMENT TYPE: Journal
LANGUAGE: English
AB 2,3-Dinor-6-keto-PGF1.alpha. (I), extd. from its acidic aq. soln., was converted to its 1-propylamide-6-methyloxime-9,11,15-tris- dimethylisopropylsilyl (PA-MO-DMIPS) ether deriv. by treating it with propylamine, O-methylhydroxylamine-HCl and then with DMIPS-imidazole. The chromatogram of the reaction product showed a single broad peak accompanying a shoulder, which was considered to be the unresolved structural syn- and anti-isomer pair. The methylene unit value of this deriv. was 34.28, being about 7.5-fold higher than that of the trimethylsilyl ether deriv. of I Me ester-methyloxime. The reaction product gave a mass spectrum with the ion of [M-43]+ at m/z 669 as a base peak. The mol. ion was obsd. at m/z 712 with low intensity, and many other characteristic ions reflecting the structure of I were also obsd. with moderate or low intensity. The PA-MO-DMIPS ether deriv. of I concd. > 5% of the total ion current (above m/z 100) into the base peak ion. When gas chromatog./high resoln. selected ion monitoring was carried out at a resoln. of 10,000 and monitoring of the ion at m/z 669.4512, specific for the structural integrity of I, the selected ion recording showed a single broad peak with signal-to-noise ratio of > 10:1 after injection of 2 pg of the deriv.

L2 ANSWER 5 OF 11 CAPLUS COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 1988:69078 CAPLUS
DOCUMENT NUMBER: 108:69078
TITLE: "Derivatization and internal standardization in prostanoid analysis"
AUTHOR(S): *Traitler, H.; Richli, U.; Kappeler, A. M.; Winter, H.*
CORPORATE SOURCE: Nestle Res. Dep., Nestec Ltd., Vevey, CH-1800, Switz.
SOURCE: **Colloque INSERM (1987), 152(Biol. Icosanoides Prod. Apparentes Niveau Cell. Sang. Vasc.), 129-42**
CODEN: CINMDE; ISSN: 0768-3154
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The gas chromatog.-mass spectroscopy method for evaluation of prostanoids (PGE2, PGF2.alpha., and 6-keto-PGF1.alpha.) was discussed and evaluated. Discussion centered on the need for carefully collected, cleaned-up, and derivatized samples to yield optimum results. Extn. of prostanoids from biol. samples were performed on RP-18 cartridges or with org. solvents followed by elution over acidic silica gel. For final quantitation by neg. ion chem. ionization mass spectroscopy anal. appropriate derivatization included formation of pentafluorobenzyl ester, methoximation, and silylation. An intermediate clean-up on acidic silica gel was useful before the last derivatization step. Deuterated internal stds. were added prior to all extn. for most prostanoids. Some anal. results are given for prostanoid evaluations in animal organ homogenates as well as human saliva.

L2 ANSWER 6 OF 11 CAPLUS COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 1986:15714 CAPLUS
DOCUMENT NUMBER: 104:15714
TITLE: "Identification of prostaglandin E metabolites from primary cultures of rat hepatocytes"

AUTHOR(S): *Okumura, Tadayoshi; Nakayama, Reiko; Sago, Tomoko; Saito, Kunihiko*
CORPORATE SOURCE: Dep. Med. Chem., Kansai Med. Univ., Osaka, 570, Japan
SOURCE: **Biochimica et Biophysica Acta (1985), 837(2), 197-207**
CODEN: BBACAQ; ISSN: 0006-3002
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Primary cultured rat hepatocytes bound PGE1 [745-65-3], PGE2 [363-24-6], PGD2 [41598-07-6], and PGF2.alpha. [551-11-1] which then rapidly degrade at 37.degree.. 6-Keto PGF1.alpha. [58962-34-8] and TXB2 [54397-85-2], which are inactive metabolites of PGI2 [35121-78-9] and TXA2 [57576-52-0] resp., bound less effectively to the cells and were not degraded. Incubation of hepatocytes with 3H-labeled prostaglandins, treatment of the cells at an acidic pH, and anal. of the acid soln. by TLC, showed that the radioactive material was bound to the cell surface and consisted of intact prostaglandin and its metabolites. The metabolites of prostaglandin E that accumulated in the culture medium were purified by silicic acid column and silica gel TLC and analyzed by gas chromatog.-mass spectrometry. PGE1 and PGE2 gave exactly the same metabolites, which were identified as dinorprostaglandin E1 [7046-40-4] and tetranorprostaglandin E1 [23923-84-4], representing products of .beta.-oxidn. Thus, part of the carboxyl side chain of prostaglandins, but not of inactive metabolites, was eliminated by a .beta.-oxidn. system in the hepatocytes, whereas the rest of the mol. was not degraded appreciably and was rapidly transferred to the outside of the cells.

L2 ANSWER 11 OF 11 CAPLUS COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 1968:47544 CAPLUS
DOCUMENT NUMBER: 68:47544
TITLE: Identification of prostaglandins E2, F2.alpha., and A2 from rabbit kidney medulla
AUTHOR(S): Lee, James Bradley; Crowshaw, Keith; Takman, Bertil H.; Attrep, Katherine A.; Gougoutas, Jack Z.
CORPORATE SOURCE: St. Vincent Hosp., Worcester, MA, USA
SOURCE: Biochemical Journal (1967), 105(3), 1251-60
CODEN: BIJOAK; ISSN: 0264-6021
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Rabbit kidney medulla (10 kg.) was homogenized in 5mM Na2HPO4 and deproteinized with EtOH, and the concd. supernatant soln. was extd. at pH 8 with light petroleum and at pH 2 with CHCl3. The acidic lipids present in the CHCl3 phase were sepd. on silicic acid columns into 3 biol. active fractions. The 1st fraction contained only vasodepressor activity; the 2nd fraction contained both vasodepressor and nonvascular smooth muscle-stimulating activity; the 3rd fraction contained both vasopressor and nonvascular smooth muscle-stimulating activity. Purification of each fraction by reversed-phase partition and thick-layer chromatog. yielded 3 pure acids. Thin-layer-chromatographic, spectroscopic, and mass-spectral anal. of the acids and their Me esters established their structures as prostaglandins E2, F2.alpha., and A2. Part or all of the prostaglandin A2 is formed, during the isolation procedures, from endogenous prostaglandin E2.

L3 ANSWER 2 OF 4 CAPLUS COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 2002:732477 CAPLUS
DOCUMENT NUMBER: 138:103102
TITLE: "Mass spectrometric analysis of leukotriene A4 and other chemically reactive metabolites of arachidonic acid"
AUTHOR(S): *Dickinson, Jennifer S.; Murphy, Robert C.*
CORPORATE SOURCE: Division of Cell Biology, Department of Pediatrics, National Jewish Medical and Research Center, Denver, CO, USA
SOURCE: **Journal of the American Society for Mass Spectrometry (2002), 13(10), 1227-1234**
CODEN: JAMSEF; ISSN: 1044-0305
PUBLISHER: Elsevier Science Inc.
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The biosynthesis of prostaglandins and leukotrienes proceeds through the formation of chem. reactive intermediates leukotriene A4 (LTA4) and prostaglandin H2 (PGH2) which in aq. solns. have chem. half-lives of 3 s and 3 min, resp. Prostacyclin (PGI2) is another chem. reactive prostanoid that has a chem. half-life of 3-4 min. The recent development of reversed phase HPLC stationary phases that are stable to elevated pH (pH 10-12) without significant column damage has permitted direct anal. of these acid-sensitive eicosanoids. Using electrospray ionization, mol. anions [M - H]- of these compds. were obsd. at m/z 317 for LTA4 and m/z 351 for both PGH2 and PGI2. The mechanism of formation of ions derived from collisional activation of LTA4 was studied using stable isotope labeled and chem. analogs of LTA4 and found to involve formation of highly conjugated anions at m/z 261 and 163. The collisional activation of the mol. anion of PGH2 yielded a product ion spectrum identical to that obsd. for the isomeric prostaglandins PGE2 and PGD2. However, it was possible to baseline sep. PGE2, PDG2, and PGH2 by reversed phase HPLC using basic HPLC mobile phases. The collisional activation of PGI2 led to a family of abundant ions including highly conjugated carbon-centered and oxygen-centered radical species (m/z 245 and 205) likely derived from the attack of the carboxylate anion on the cyclic enolether of PGI2 as well as the most abundant product ion (m/z 215) which formed following loss of neutral hexanal and water. The structures of these product ions were consistent with high resoln. measurements measured in a quadrupole time-of-flight mass spectrometer.
REFERENCE COUNT: 23

=> d l3 ibib abs 4

L3 ANSWER 4 OF 4 CAPLUS COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 1994:125091 CAPLUS
DOCUMENT NUMBER: 120:125091
TITLE: "Assay of urinary 2,3-dinor-6-oxo prostaglandin F1.alpha. by gas chromatography-tandem mass spectrometry"
AUTHOR(S): *Ferretti, Aldo; Flanagan, Vincent P.*
CORPORATE SOURCE: Beltsville Hum. Nutr. Res. Cent., ARS, Beltsville, MD, 20705, USA

SOURCJournal of Chromatography, Biomedical Applications (1993), 622(2), 109-15
CODEN: JCBADL; ISSN: 0378-4347
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Prostacyclin (PGI2), an important determinant of cardiovascular biol., is produced from arachidonic acid by endothelial cells. Measurement of its stable urinary metabolite, 2,3-dinor-6-oxo prostaglandin F1.alpha. (PGI2-M), is the approach of choice to assess variations of the endogenous synthesis of PGI2 that occur in response to dietary, pharmacol. and pathol. alterations. The authors developed a relatively simple stable isotope diln. assay for PGI2-M which involves solid-phase extn. of 10 mL of urine with Chem Elut disposable columns, water/solvent partitioning from basic and acid environments with Et acetate and methylene chloride, derivatization to 1-pentafluoro-benzyl ester followed by TLC, methoximation and trimethylsilylation. Quantification was achieved, for the first time for PGI2-M, by capillary GC-electron capture neg. ion MS-MS with a triple quadrupole mass spectrometer operated in the neg. ion detection mode with methane as moderating gas. The mean inter-assay relative std. deviation, detd. on 12 different urine samples, was 5.1 (range 0.4% to 10.5%). The excretion of PGI2-M in 34 healthy male subjects (age 26 to 57) was 156.2 ng/24 h.

> d l4 ibib abs 1-35

L4 ANSWER 1 OF 35 CAPLUS COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 2003:352521 CAPLUS
DOCUMENT NUMBER: 139:81491
TITLE: Comparative identification of prostanoid inducible proteins by LC-ESI-MS/MS and MALDI-TOF Mass Spectrometry
AUTHOR(S): Person, Maria D.; Lo, Herng-Hsiang; Towndrow, Kelly M.; Jia, Zhe; Monks, Terrence J.; Lau, Serrine S.
CORPORATE SOURCE: Center for Molecular and Cellular Toxicology Division of Pharmacology and Toxicology College of Pharmacy, University of Texas at Austin, Austin, TX, 78712, USA
SOURCE: Chemical Research in Toxicology (2003), 16(6), 757-767
CODEN: CRTOEC; ISSN: 0893-228X
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Protein identification by MS is well-established. Mixts. of proteins from cell exts. are sepd. by either one- or two-dimensional gel electrophoresis, and specific bands or spots are subjected to in-gel digestion and subsequent anal. by MS. The two most common types of ionization used in MS are electrospray ionization (ESI) and matrix-assisted laser desorption/ionization (MALDI). When ESI is used, the sample is typically analyzed by inline HPLC-ESI-MS/MS with fragmentation of individual digest peptides, followed by database comparison between theor. and exptl. fragmentation patterns. MALDI-MS anal. is based on peptide mass mapping, with mass measurements of the digest peptides searched against a database of theor. digests. We give here the results of a comparison between ESI-ion trap and MALDI-TOF (time-of-flight) anal. of 11-

deoxy,16,16-dimethyl prostaglandin E2 (DDM-PGE2) inducible proteins. Individual peptides identified by the two techniques differed, in general, but the resulting protein identification was the same. Slightly higher coverage of each protein was obtained by MALDI-TOF, but the MS/MS data were more definitive by requiring fewer peptides to assign a pos. identification. Both methods effectively identified two proteins in the same gel band. The samples here are derived from a renal epithelial cell line (LLC-PK1) established from the New Hampshire minipig, a species poorly represented in the current database, and strategies and limitations for analyzing such species are discussed.
REFERENCE COUNT: 32

L4 ANSWER 2 OF 35 CAPLUS COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 2003:91515 CAPLUS
DOCUMENT NUMBER: 138:331834
TITLE: "Quantification of 8-iso-prostaglandin-F2.alpha. and 2,3-dinor-8-iso-prostaglandin -F2.alpha. in human urine using liquid chromatography-tandem mass spectrometry"
AUTHOR(S): *Liang, Yuanling; Wei, Ping; Duke, Russell W.; Reaven, Peter D.; Harman, S. Mitchell; Cutler, Richard G.; Heward, Christopher B.*
CORPORATE SOURCE: Kronos Science Laboratory, Phoenix, AZ, USA
SOURCE: **Free Radical Biology & Medicine (2003), 34(4), 409-418**
CODEN: FRBMEH; ISSN: 0891-5849
PUBLISHER: Elsevier Science Inc.
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Quantification of 8-iso-prostaglandin F2.alpha. (8-iso-PGF2.alpha.) has been suggested to be a reliable indicator of lipid peroxidn. that may be related to in vivo free radical generation, oxidative damage, and antioxidant deficiency. We have developed a LC-MS/MS method to quantify 8-iso- PGF2.alpha. and its dinor metabolite, 2,3-dinor-8-iso-prostaglandin F2.alpha. (2,3-dinor-8-iso-PGF2.alpha.), in human urine samples. After an initial purifn. step using an automated C18 solid phase extn. procedure, the urine sample was injected directly into a liq. chromatog. (LC) system and detected with tandem mass spectrometry. The detection limit of the assay was 9 pg for 8-iso-PGF2.alpha. and 3 pg for 2,3-dinor-8-iso-PGF2.alpha. with both inter- and intraday variations of less than 12%. The inaccuracies were less than 3% for both analytes at three different levels. The urinary excretion rate of 2,3-dinor-8-iso-PGF2.alpha. was higher than that of 8-iso-PGF2.alpha., and changed in proportion to the parent compd. (R = 0.70, n = 60). Values obtained with this method showed good linear correlation to duplicate 8-iso-PGF2.alpha. measurements performed with GCMS (R = 0.97, n = 15). The mean excretion rates of 8-iso-PGF2.alpha. and 2,3-dinor-8-iso- PGF2.alpha. were significantly higher in smokers than in nonsmokers (0.53.+-.0.37 vs. 0.25.+-.0.15 .mu.g/g creatinine, p = 0.002 for 8-iso-PGF2.alpha. and 8.9.+-.3.8 vs. 4.6.+-.2.6 .mu.g/g creatinine, p = 0.003 for 2,3-dinor-8-iso-PGF2.alpha., resp.). The excellent accuracy, reproducibility, and high throughput of this method should permit it to be used in large clin. studies and std. clin. labs.
REFERENCE COUNT: 35

L4 ANSWER 3 OF 35 CAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 2002:815664 CAPLUS
DOCUMENT NUMBER: 138:101067
TITLE: "Simultaneous quantification of prostaglandins in human synovial cell-cultured medium using liquid chromatography/tandem mass spectrometry"
AUTHOR(S): *Takabatake, M.; Hishinuma, T.; Suzuki, N.; Chiba, S.; Tsukamoto, H.; Nakamura, H.; Saga, T.; Tomioka, Y.; Kurose, A.; Sawai, T.; Mizugaki, M.*
CORPORATE SOURCE: Department of Pharmaceutical Sciences, Tohoku University Hospital, Sendai, 980-8574, Japan
SOURCE**Prostaglandins, Leukotrienes and Essential Fatty Acids (2002), 67(1), 51-56**
CODEN: PLEAEU; ISSN: 0952-3278
PUBLISHER: Elsevier Science Ltd.
DOCUMENT TYPE: Journal
LANGUAGE: English
AB A liq. chromatog.-tandem mass spectrometric (LC/MS-MS) method was developed for the simultaneous quantification of prostaglandin (PG) E2, PGF2.alpha., 6-keto-PGF1.alpha. and thromboxane (TX) B2. These eicosanoids and their deuterium derivs., used as internal stds., were extd. by solid-phase extn. and analyzed using LC/MS-MS in the selected reaction-monitoring (SRM) mode. A good linear response over the range of 10 pg to 10 ng for each eicosanoid was demonstrated. The accuracy of added eicosanoids ranged from 94.1 to 106.6% and coeffs. of variation ranged from 0.62 to 7.8%. Furthermore, the authors applied this method for the detn. of eicosanoids in the human synovial cell-cultured medium, stimulated by lipopolysaccharide (LPS). LPS produced each eicosanoid and they increased in a time-dependent manner. The prodn. levels after 24 h stimulation were 6-keto-PGF1.alpha. > PGE2 > TXB2 .mchgt. PGF2.alpha.. This simultaneous quantification method is useful to clarify the function of synovial cells in rheumatoid arthritis (RA).
REFERENCE COUNT: 13

L4 ANSWER 4 OF 35 CAPLUS COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 2002:690152 CAPLUS
DOCUMENT NUMBER: 138:66770
TITLE: "Quantitative high-performance liquid chromatography/electrospray ionization tandem mass spectrometric analysis of 2- and 3-series prostaglandins in cultured tumor cells"
AUTHOR(S): *Yang, Peiying; Felix, Edward; Madden, Timothy; Fischer, Susan M.; Newman, Robert A.*
CORPORATE SOURCE: M. D. Anderson Cancer Center, Department of Experimental Therapeutics, University of Texas, Houston, TX, 77030, USA
SOURCE: **Analytical Biochemistry (2002), 308(1), 168-177**
CODEN: ANBCA2; ISSN: 0003-2697
PUBLISHER: Elsevier Science
DOCUMENT TYPE: Journal
LANGUAGE: English
AB This paper describes a rapid and simple technique for the simultaneous quant. anal. of PGE2, PGE3, and other closely related prostaglandins from cultured cells using liq. chromatog./electrospray ionization tandem mass spectrometry. This method permits

quantification of selected individual prostaglandins derived either from arachidonic acid (AA) or eicosapentaenoic acid (EPA) from cell exts. without tedious derivatization, lengthy sample prepn., and sepn. required by GC-MS- or HPLC-UV-based methods. The validation assessment showed that the quant. detn. is linear (R2 >0.999) for both PGE2 and PGE3 in the range tested (1-500 ng/mL, 0.0028-1.4 .mu.M) and a coeff. of variation lower than 10% was obtained for samples analyzed on 3 sep. days. The detection limit was 2.5 pg for both PGE2 and PGE3. Extn. efficiency of PGE2 and PGE3 from cell suspensions ranged from 89.4 to 98.2%. As an application of the method, prostaglandins formed by EPA in human lung cancer A549 cells were detd. A 62% redn. of PGE2 formation was noted when A549 cells were treated with 100 .mu.M of EPA. Concomitantly, EPA increased formation of PGE3 by 10-fold in A549 cells. This is the first report that unequivocally demonstrates that EPA can be converted to PGE3 by cyclooxygenase in human cancer cells.
REFERENCE COUNT: 38

L4 ANSWER 6 OF 35 CAPLUS COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 2002:12671 CAPLUS
DOCUMENT NUMBER: 136:178073
TITLE: "Gas chromatography-tandem mass spectrometry determination of 8-iso-PGF2.alpha., a biomarker of in vivo lipid peroxidation, in human plasma and urine"
AUTHOR(S): Richelle, M.; Turini, M. E.; Guidoux, R.; Tavazzi, I.; Metairon, S.; Fay, L. B.
CORPORATE SOURCE: Nestle Research Center, Nestec Ltd, Lausanne, 1000/26, Switz.
SOURCE: European Journal of Mass Spectrometry (2001), 7(4&5), 427-432
CODEN: EJMSCL; ISSN: 1469-0667
PUBLISHER: IM Publications
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The measurement of isoprostanes is a promising assay that is specific and sensitive enough to detect in vivo lipid peroxidn. The authors present here a gas chromatog.-tandem mass spectrometry (GC/MS/MS) method that enables detn. of 8-iso-prostaglandin F2.alpha. (8-iso-PGF2.alpha.) in human plasma and urine. After the addn. of [2H4]-PGF2.alpha. as the internal std. to acidified plasma or urine, the samples are purified on C18 and silica cartridges, derivatized as pentafluorobenzyl esters, extd. with di-Et ether, purified on silica gel TLC plates and finally silylated. Then, 8-iso-PGF2.alpha. and its internal std. are measured by GC/MS/MS in selective-reaction monitoring mode using the transition [M - 181]- to [M - 181 - (3 .times. 90)]-. The detection limit of this method is 5 pg mL-1. Its application is presented in two situations of oxidative stress: in vitro low-d. lipoprotein oxidn. and in smokers. Measurement of urinary 8-iso-PGF2.alpha. levels provides a non-invasive in vivo index of free radical generation that appears not to be confounded by changes in diet.
REFERENCE COUNT: 20

L4 ANSWER 7 OF 35 CAPLUS COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 2001:105315 CAPLUS

DOCUMENT NUMBER: 134:249174
TITLE: Towards defining the urinary proteome using liquid chromatography-tandem mass spectrometry. I. Profiling an unfractionated tryptic digest
AUTHOR(S): Spahr, Chris S.; Davis, Michael T.; McGinley, Michael D.; Robinson, John H.; Bures, Edward J.; Beierle, Jill; Mort, Jessica; Courchesne, Paul L.; Chen, Kui; Wahl, Robert C.; Yu, Wen; Luethy, Roland; Patterson, Scott D.
CORPORATE SOURCE: Departments of Biochemistry and Genetics, Thousand Oaks, CA, USA
SOURCE: Proteomics (2001), 1(1), 93-107 Published in: Electrophoresis, 22(2)
CODEN: PROTC7; ISSN: 1615-9853
PUBLISHER: Wiley-VCH Verlag GmbH
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The proteome of normal male urine from a com. pooled source has been examd. using direct liq. chromatog.-tandem mass spectrometry (LC-MS/MS). The entire urinary protein mixt. was denatured, reduced and enzymically digested prior to LC-MS/MS anal. using a hybrid-quadrupole time-of-flight mass spectrometer (Q-TOF) to perform data-dependent ion selection and fragmentation. To fragment as many peptides as possible, the mixt. was analyzed four sep. times, with the mass spectrometer selecting ions for fragmentation from a subset of the entire mass range for each run. This approach requires only an autosampler on the HPLC for automation (i.e, unattended operation). Across these four analyses, 1.450 peptide MS/MS spectra were matched to 751 sequences to identify 124 gene products (proteins and translations of expressed sequence tags). Interestingly, the exptl. time for these analyses was less than that required to run a single two-dimensional gel.
REFERENCE COUNT: 27

L4 ANSWER 8 OF 35 CAPLUS COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 2000:597612 CAPLUS
DOCUMENT NUMBER: 133:232967
TITLE: Determination of urinary 8-epi-prostaglandin F2.alpha. using liquid chromatography-tandem mass spectrometry: increased excretion in diabetics
AUTHOR(S): Murai, Yuriko; Hishinuma, Takanori; Suzuki, Naoto; Satoh, Jo; Toyota, Takayoshi; Mizugaki, Michinao
CORPORATE SOURCE: Department of Pharmaceutical Sciences, Tohoku University Hospital, Sendai, 980-8574, Japan
SOURCE: Prostaglandins & Other Lipid Mediators (2000), 62(2), 173-181
CODEN: POLMFL; ISSN: 1098-8823
PUBLISHER: Elsevier Science Inc.
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Liq. chromatog.-tandem mass spectrometry (LC/MS-MS) was applied to the quant. anal. of urinary 8-epi- prostaglandin F2.alpha. (8-epi-PGF2.alpha.) level. 8-Epi-PGF2.alpha. and its internal std., [2H4]-8-epi-PGF2.alpha., were extd. from urine by using a solid phase extn. cartridge and loaded to LC/MS-MS in selected reaction monitoring (SRM) mode. The std. curve showed good linearity in the range of 40 pg to

10 ng (r=0.997). The accuracy of the added 8-epi-PGF2.alpha. ranged from 96.8 to 104.9% with a mean .+-.SD of 99.5.+-.2.5%. The av. level .+-.SD of urinary 8-epi-PGF2.alpha. in 13 healthy volunteers (five women and eight men, 31.+-.7.4 yr old) was 429.4.+-.149.6 pg/mg creatinine. The level of seven patients with noninsulin dependent diabetes mellitus (two women and five men, 40.+-.13.6 yr old), 630.9.+-.275.6 pg/mg creatinine, was statistically higher than that of healthy volunteers ($P < 0.05$). This finding suggested that diabetics are in a highly oxidative condition. This simple and rapid LC/MS-MS method can be used to elucidate the pathophysiol. feature of diabetes or for monitoring the curative effect.
REFERENCE COUNT: 29

L4 ANSWER 9 OF 35 CAPLUS COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 2000:507393 CAPLUS
DOCUMENT NUMBER: 133:217835
TITLE: Semi-automated 96-well solid-phase extraction and gas chromatography-negative chemical ionization tandem mass spectrometry for the trace analysis of fluprostenol in rat plasma
AUTHOR(S): Gauw, R. D.; Stoffolano, P. J.; Kuhlenbeck, D. L.; Patel, V. S.; Garver, S. M.; Baker, T. R.; Wehmeyer, K. R.
CORPORATE SOURCE: Procter & Gamble Pharmaceuticals, Mason, OH, 45040, USA
SOURCE: Journal of Chromatography, B: Biomedical Sciences and Applications (2000), 744(2), 283-291
CODEN: JCBBEP; ISSN: 0378-4347
PUBLISHER: Elsevier Science B.V.
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Semi-automated 96-well plate solid-phase extn. (SPE) was used for sample prepn. of fluprostenol, a prostaglandin analog, in rat plasma prior to detection by gas chromatog.-neg. chem. ionization tandem mass spectrometry (GC-NCI-MS-MS). A liq. handling system was utilized for all aspects of sample handling prior to SPE including transferring of samples into a 96-well format, prepn. of stds. as well as addn. of internal std. to stds., quality control samples and study samples. SPE was performed in a 96-well plate format using octadecylsilane packing and the effluent from the SPE was dried in a custom-made 96-well app. The sample residue was derivatized sequentially with pentafluorobenzylbromide followed by N-methyl-N- trimethylsilyltrifluoroacetamide. The derivatized sample was then analyzed using GC-NCI-MS-MS. The dynamic range for the method was from 7 to 5800 pg/mL with a 0.1-mL plasma sample. The methodol. was evaluated over a 4-day period and demonstrated an accuracy of 90-106% with a precision of 2.4-12.9%.
REFERENCE COUNT: 11

L4 ANSWER 10 OF 35 CAPLUS COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 2000:469584 CAPLUS
DOCUMENT NUMBER: 133:232954
TITLE: Tandem mass spectrometric quantification of 8-iso-prostaglandin F2.alpha. and its metabolite 2,3-dinor-5,6-dihydro-8-iso-prostaglandin F2.alpha. in human urine

AUTHOR(S): Schwedhelm, E.; Tsikas, D.; Durand, T.; Gutzki, F.-M.; Guy, A.; Rossi, J.-C.; Frolich, J. C.
CORPORATE SOURCE: Institute of Clinical Pharmacology, Hannover Medical School, Hannover, D-30623, Germany
SOURCE: Journal of Chromatography, B: Biomedical Sciences and Applications (2000), 744(1), 99-112
CODEN: JCBBEP; ISSN: 0378-4347
PUBLISHER: Elsevier Science B.V.
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Whole body synthesis of F2-isoprostanes, a family of cyclooxygenase- independent eicosanoids formed by free-radical catalyzed peroxidn., should be best assessed by quantifying their urinary metabolites. Two methods for the quant. detn. of F2-isoprostane metabolites in human urine performing either thin-layer chromatog. (TLC) (method A) or HPLC (method B) prior to GC-tandem MS are described. Method A allows for simultaneous quantification of 8-iso-PGF2.alpha., one prominent member of the F2-isoprostane family, and its major urinary metabolite, 2,3-dinor-5,6-dihydro-8-iso-PGF2.alpha.. Mean excretion was found to be 223 and 506 pg/mg creatinine of 8-iso-PGF2.alpha. and 2,3-dinor-5,6- dihydro-8-iso-PGF2.alpha., resp. (n=14). A tight correlation existed between the urinary excretion of these two isoprostanes (r=0.86). Method B enables quantification of dinor-dihydro metabolites of various F2-isoprostanes including 8-iso-PGF2.alpha.. 2,3-Dinor-5,6-dihydro-8-iso- PGF2.alpha. was found to be an abundant dinor-dihydro F2-isoprostane metabolite. Validity of method A was proven by a combination of HPLC with TLC prior to GC-tandem MS anal. A correlation was obsd. between the urinary concns. of 2,3-dinor-5,6-dihydro-8-iso-PGF2.alpha. measured by GC-MS and GC-tandem MS (r=0.84).
REFERENCE COUNT: 33

L4 ANSWER 11 OF 35 CAPLUS COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 2000:436507 CAPLUS
DOCUMENT NUMBER: 133:172265
TITLE: Solid- and liquid-phase extraction for the gas chromatographic-tandem mass spectrometric quantification of 2,3-dinor-thromboxane B2 and 2,3-dinor-6-oxo-prostaglandin F1.alpha. in human urine
AUTHOR(S): Tsikas, D.; Gutzki, F.-M.; Bohme, M.; Fuchs, I.; Frolich, J. C.
CORPORATE SOURCE: Institute of Clinical Pharmacology, Hannover Medical School, Hannover, D-30623, Germany
SOURCE: Journal of Chromatography, A (2000), 885(1+2), 351-359
CODEN: JCRAEY; ISSN: 0021-9673
PUBLISHER: Elsevier Science B.V.
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Whole body synthesis of thromboxane A2 is best assessed by quantifying non-invasively its major urinary metabolite, i.e., 2,3-dinor-thromboxane B2 (2,3-dn-TxB2), by gas chromatog.-mass spectrometry (GC-MS) or GC-tandem MS. Methods based on these techniques usually require a series of extn. and purifn. procedures including solid-

phase extn. (SPE) and thin-layer chromatog. (TLC) or liq. chromatog. sepn. of authentic or derivatized 2,3-dn-TxB2. Taking advantage of the inherent accuracy of GC-tandem MS and the high selectivity of the extn. of methoximated 2,3-dn-TxB2 on phenylboronic acid SPE cartridges the authors developed a method that involves only SPE steps prior to quantification by GC-tandem MS. The method was validated by performing in parallel an addnl. TLC step. Method mean accuracy and precision were of the order of 103% and 95%, resp. The method allows furthermore co-processing of the same urine sample to quantify accurately and rapidly the major urinary metabolite of prostacyclin, i.e., 2,3-dn-6-oxo-prostaglandin (PG) F1.alpha., by GC-tandem MS. The limit of detection of the method was below each 5 pg of 2,3-dn-TxB2 and 2,3-dn-6-oxo-PGF1.alpha. per 5 mL of urine. The authors' study suggests that dinor metabolites of isothromboxanes and isoprostacyclins are not abundantly present in human urine.
REFERENCE COUNT: 16

L4 ANSWER 12 OF 35 CAPLUS COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 2000:303928 CAPLUS
DOCUMENT NUMBER: 133:99681
TITLE: Use of short high-performance liquid chromatographycolumns and tandem-mass spectrometry for the rapid analysis of a prostaglandin analog, fluprostenol, in rat plasma
AUTHOR(S): Eichhold, T. H.; Kuhlenbeck, D. L.; Baker, T. R.; Stella, M. E.; Amburgey, J. S.; deLong, M. A.; Hartke, J. R.; Cruze, C. A.; Pierce, S. A.; Wehmeyer, K. R.
CORPORATE SOURCE: Procter & Gamble Pharmaceuticals, Mason, OH, USA
SOURCE: Journal of Chromatography, B: Biomedical Sciences and Applications (2000), 741(2), 213-220
CODEN: JCBBEP; ISSN: 0378-4347
PUBLISHER: Elsevier Science B.V.
DOCUMENT TYPE: Journal
LANGUAGE: English
AB A short reversed-phase HPLC column and a tandem mass spectrometer were used to develop a stable-isotope-diln. assay for the rapid and sensitive anal. of fluprostenol, a prostaglandin analog, in rat plasma. A Waters Symmetry ODS column (2.1 .times. 10 mm) afforded rapid isocratic elution of fluprostenol (tR=40 s) but still provided a relatively large k' value of 4. The use of tandem mass spectrometry allowed the interference-free detection of fluprostenol under the rapid elution conditions, with a limit of quantitation of 25 pg ml-1 fluprostenol, using 0.2 mL plasma sample vols. The method was linear over three orders of magnitude, yielded accurate and precise results and allowed the pharmacokinetic profile of fluprostenol to be defined following i.v. administration in rats. REFERENCE COUNT: 12

L4 ANSWER 13 OF 35 CAPLUS COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 1999:765568 CAPLUS
DOCUMENT NUMBER: 132:59293
TITLE: Quantitative high performance liquid chromatography/tandem mass spectrometric analysis of the four classes of F2-isoprostanes in human urine

AUTHOR(S): Li, Hongwei; Lawson, John A.; Reilly, Muredach; Adiyaman, Mustafa; Hwang, Seong-Woo; Rokach, Joshua; FitzGerald, Garret A.
CORPORATE SOURCE: Center for Experimental Therapeutics, University of Pennsylvania, Philadelphia, PA, 19104, USA
SOURCE: Proceedings of the National Academy of Sciences of the United States of America (1999), 96(23), 13381-13386
CODEN: PNASA6; ISSN: 0027-8424
PUBLISHER: National Academy of Sciences
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Isoprostanes (iPs) are free radical catalyzed prostaglandin isomers. Anal. of individual isomers of PGF2.alpha.-F2-iPs-in urine has reflected lipid peroxidn. in humans. However, up to 64 F2-iPs may be formed, and it is unknown whether coordinate generation, disposition, and excretion of F2-iPs occurs in humans. To address this issue, we developed methods to measure individual members of the four structural classes of F2-iPs, using liq. chromatog./tandem mass spectrometry (LC/MS/MS), in which sample prepn. is minimized. Authentic stds. of F2-iPs of classes III, IV, V, and VI were used to identify class-specific ions for multiple reaction monitoring. Using iPF2.alpha.-VI as a model compd., we demonstrated the reproducibility of the assay in human urine. Urinary levels of all F2-iPs measured were elevated in patients with familial hypercholesterolemia. However, only three of eight F2-iPs were elevated in patients with congestive heart failure, compared with controls. Paired analyses by GC/MS and LC/MS/MS of iPF2.alpha.-VI in hypercholesterolemia and of 8,12-iso-iPF2.alpha.-VI in congestive heart failure were highly correlated. This approach will permit high throughput anal. of multiple iPs in human disease.
REFERENCE COUNT: 50

L4 ANSWER 16 OF 35 CAPLUS COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 1999:405780 CAPLUS
DOCUMENT NUMBER: 131:209252
TITLE: "Simultaneous determination of prostaglandin E1, prostaglandin E0 and 15-keto-prostaglandin E0 in human plasma by gas chromatography/negative-ion chemical-ionization tandem mass spectrometry"
AUTHOR(S): *Hammes, Wilhelm; Buchsler, Ursula; Kinder, Petra; Bokens, Hilmar*
CORPORATE SOURCE: Department of Bioanalytics, Schwarz Pharma AG, Monheim, 40789, Germany
SOURCE: **Journal of Chromatography, A (1999), 847(1 + 2), 187-202**
CODEN: JCRAEY; ISSN: 0021-9673
PUBLISHER: Elsevier Science B.V.
DOCUMENT TYPE: Journal
LANGUAGE: English
AB A sensitive and selective routine method for the simultaneous detn. Of prostaglandin E1 (PGE1), prostaglandin E0 (PGE0) and 15-keto-prostaglandin E0 (15-keto-PGE0) in human plasma is described using deuterated internal stds. The analytes were isolated from acidified human plasma by solid-phase extn. by Bond Elut C18 cartridges and derivatized to the pentafluorobenzyl (PFB) ester methoxime. The analytes

were purified on Bond Elut Si cartridges and converted to the trimethylsilyl (TMS) ether. Quantitation was achieved by gas chromatog.-neg.-ion chem.-ionization tandem mass spectrometry. The precursor ion [M-PFB]- = [P]- carried more than 80% of the total ion current. Collision activated decompn. (CAD) of [P]- resulted in characteristic product ions of which the [P-2(CH3)3SiOH]- ion (PGE1) and the [P-(CH3)3SiOH]- ion (PGE0 and 15-keto-PGE0) were used for quantitation. The lower limit of quantitation (LLQ) was 2 pg/mL (PGE1 and PGE0) and 10 pg/mL (15-keto-PGE0) extd. from 2 mL of human plasma. Linear calibration curves were obtained over the concn. range 2-100 pg/mL (PGE1 and PGE0) and 10-500 pg/mL (15-keto-PGE0). In all cases, the precision and accuracy were <17%. The present method has been applied successfully to pharmacokinetic and clin. studies in humans.
REFERENCE COUNT: 38

L4 ANSWER 17 OF 35 CAPLUS COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 1998:736922 CAPLUS
DOCUMENT NUMBER: 130:61215
TITLE: Identification of two major F2 isoprostanes, 8,12-iso- and 5-epi-8,12-iso-isoprostane F2.alpha.-VI, in human urine
AUTHOR(S): Lawson, John A.; Li, Hongwei; Rokach, Joshua; Adiyaman, Mustafa; Hwang, Seong-Woo; Khanapure, Subhash P.; FitzGerald, Garret A.
CORPORATE SOURCE: Center for Experimental Therapeutics, University of Pennsylvania, Philadelphia, PA, 19104-6100, USA
SOURCE: Journal of Biological Chemistry (1998), 273(45), 29295-29301
CODEN: JBCHA3; ISSN: 0021-9258
PUBLISHER: American Society for Biochemistry and Molecular Biology
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Isoprostanes (iPs) are nonenzymic, free radical-derived compds. isomeric with enzymically formed eicosanoids such as prostaglandins, leukotrienes, and thromboxanes. One group formed by the auto-oxidn. of arachidonic acid, the F2-iPs, consists of four classes of isomers of prostaglandin F2.alpha. (PGF2.alpha.). They are relatively abundant in human urine. This fact, along with their chem. stability and excellent characteristics for quantitation by gas chromatog./mass spectrometry, has made them attractive indexes of oxidative stress in humans. We developed a specific assay using gas chromatog./mass spectrometry for the first identified F2-iP, iPF2.alpha.-III (previously called 8-iso-PGF2.alpha. or 8-epi-PGF2.alpha.), which demonstrated the utility of monitoring a specific isomer. Recently, we described an assay for another isomer, iPF2.alpha.-VI, which is present in urine in greater concn. than iPF2.alpha.-III and which is particularly amenable to quantitation. We now describe the identification in human urine of two more isomers, 8,12-iso-iPF2.alpha.-VI and 5-epi-8,12-iso-iPF2.alpha.-VI, using high performance liq. chromatog./tandem mass spectrometry and gas chromatog./mass spectrometry. These compds. are each present in .apprx.5-fold greater concns. than iPF2.alpha.-VI (.apprx.20-fold greater than iPF2.alpha.-III). They share the unique chem. characteristics of class VI compds., which make them attractive targets for quantitation by gas chromatog./mass spectrometry and immunoassay development.

L4 ANSWER 18 OF 35 CAPLUS COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 1998:729499 CAPLUS
DOCUMENT NUMBER: 130:61183
TITLE: "Application of gas chromatography-mass spectrometry and gas chromatography-tandem mass spectrometry to assess in vivo synthesis of prostaglandins, thromboxane, leukotrienes, isoprostanes and related compounds in humans"
AUTHOR(S): *Tsikas, Dimitrios*
CORPORATE SOURCE: Hannover Medical School, Institute of Clinical Pharmacology, Hannover, 30623, Germany
SOURCE: **Journal of Chromatography, B: Biomedical Sciences and Applications (1998), 717(1 + 2), 201-245**
CODEN: JCBBEP; ISSN: 0378-4347
PUBLISHER: Elsevier Science B.V.
DOCUMENT TYPE: Journal; General Review
LANGUAGE: English
AB A review, with 304 refs. Prostaglandins, thromboxane, leukotrienes, isoprostanes and other arachidonic acid metabolites are structurally closely related, potent, biol. active compds. One of the most challenging tasks in eicosanoids research has been to define the role of the various eicosanoids in human health and disease, and to monitor the effects of drugs on the in vivo synthesis of these lipid mediators in man. Great advances in instrumentation and ionization techniques, in particular the development of tandem mass spectrometry and neg.-ion chem. ionization (NICI), in gas chromatog. and also advances in methodologies for solid-phase extn. and sample purifn. by thin-layer chromatog. and HPLC have been made. Now gas chromatog.-mass spectrometry (GC-MS) and GC-tandem MS in the NICI mode are currently indispensable anal. tools for reliable routine quantitation of eicosanoid formation in vivo in humans. In this article anal. methods for eicosanoids based on GC-MS and GC-tandem MS are reviewed emphasizing the quant. measurement of specific index metabolites in human urine and its importance in clin. studies in man. Aspects of method validation and quality control are also discussed.
REFERENCE COUNT: 257

L4 ANSWER 19 OF 35 CAPLUS COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 1998:639572 CAPLUS
DOCUMENT NUMBER: 130:20701
TITLE: Specific and rapid quantification of 8-iso-prostaglandin F2.alpha. in urine of healthy humans and patients with Zellweger syndrome by gas chromatography-tandem mass spectrometry
AUTHOR(S): Tsikas, Dimitrios; Schwedhelm, Edzard; Fauler, Joachim; Gutzki, Frank-Mathias; Mayatepek, Ertan; Frolich, Jurgen C.
CORPORATE SOURCE: Institute of Clinical Pharmacology, Hannover Medical School, Hannover, D-30625, Germany
SOURCE: Journal of Chromatography, B: Biomedical Sciences and Applications (1998), 716(1 + 2), 7-17
CODEN: JCBBEP; ISSN: 0378-4347
PUBLISHER: Elsevier Science B.V.
DOCUMENT TYPE: Journal

LANGUAGE: English
AB 8-Iso-Prostaglandin F2.alpha. (8-iso-PGF2.alpha.) is currently discussed as a potential index parameter of oxidative stress in vivo. We describe in this article a fully validated gas chromatog.-tandem mass spectrometric method for the quant. detn. of 8-iso-PGF2.alpha. in human urine. The method is highly specific and requires a single thin-layer chromatog. step for sample purifn. Inter- and intraday imprecision were below 8%. Mean inaccuracy was 5.3% for added levels of 8-iso-PGF2.alpha. up to 2000 pg/mL of urine. We measured highly elevated excretion of 8-iso-PGF2.alpha. in the urine of children with peroxisomal .beta.-oxidn. deficiency, i.e. Zellweger syndrome, (63.3.+-.16.6 ng/mg creatinine) compared to that of healthy children (0.51.+-.0.16 ng/mg creatinine) (mean.+-.S.D., both n=5). The method could be useful for diagnosing Zellweger syndrome and for investigating the utility of 8-iso-PGF2.alpha. as a novel marker for oxidative stress in vivo in man.
REFERENCE COUNT: 25

L4 ANSWER 20 OF 35 CAPLUS COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 1997:404894 CAPLUS
DOCUMENT NUMBER: 127:131096
TITLE: Enzymic synthesis of dioxygen-18-labeled 8-epi-prostaglandin F2.alpha. and its use in quantitative GC-tandem MS
AUTHOR(S): Tsikas, Dimitrios; Schwedhelm, Edzard; Gutzki, Frank-Mathias; Jahn, Olaf; Fakistas, Panagiotis; Frolich, Jurgen C.
CORPORATE SOURCE: Institute of Clinical Pharmacology, Hannover Medical School, Hannover, D-30625, Germany
SOURCE: Journal of Labelled Compounds & Radiopharmaceuticals (1997), 39(6), 531-540
CODEN: JLCRD4; ISSN: 0362-4803
PUBLISHER: Wiley
DOCUMENT TYPE: Journal
LANGUAGE: English
AB 8-Epi-Prostaglandin F2.alpha. (8-epi-PGF2.alpha.) is an endogenous potent vasoconstrictor, non-cyclooxygenase-derived prostanoid which may be suitable as an index of oxidative stress in living organisms. For quant. detn. of 8-epi-PGF2.alpha. in biol. fluids we describe here the one-step enzymic synthesis of [1,1-18O2]-8-epi-PGF2.alpha. starting from com. available unlabeled 8-epi-PGF2.alpha., H218O, and an unspecific porcine liver esterase. The isolated and purified reaction product was found to contain 80.3% [1,1-18O2]-8-epi-PGF2.alpha., 17.7% [1,1-18O16O]-8-epi- PGF2.alpha., and only 2.0% unlabeled 8-epi-PGF2.alpha.. [1,1-18O2]-8-epi-PGF2.alpha. is demonstrated to be a suited internal std. for quant. detn. of 8-epi-PGF2.alpha. in human urine by GC-MS/MS. In 5 mL aliquots of human urine samples from spontaneous micturation on different days, 8-epi-PGF2.alpha. was found to be present at concns. of 300 and 490 pg/mg creatinine, resp.

L4 ANSWER 21 OF 35 CAPLUS COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 1997:271059 CAPLUS
DOCUMENT NUMBER: 126:339204

TITLE: Identification of novel metabolites of prostaglandin E2 formed by isolated rat hepatocytes
AUTHOR(S): Hankin, Joseph A.; Wheelan, Pat; Murphy, Robert C.
CORPORATE SOURCE: Dep. Pediatrics, Div. Basic Sci., Natl. Jewish Med. Res. Center, Denver, CO, 80206, USA
SOURCE: Archives of Biochemistry and Biophysics (1997), 340(2), 317-330
CODEN: ABBIA4; ISSN: 0003-9861
PUBLISHER: Academic
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The metab. of prostaglandin E2 (PGE2) in isolated rat hepatocytes led to the formation of four major as well as several minor products which were structurally characterized using electrospray tandem mass spectrometry. The major metabolites identified included dinor-PGE1, dinor-PGE2, and tetranor-PGE1 and the taurine conjugates of dinor-PGE1 and dinor-PGE2. Several minor metabolites including the taurine conjugates of PGE2 and tetranor PGE1 along with a glucuronide conjugate of PGE2 were also identified. These taurine conjugates had not been previously identified in studies of PGE2 metab., yet comprised nearly 50% of the mixts. of metabolites after 40-min incubations. Expts. carried out with deuterium-labeled PGE2 ([3,3,4,4-D4]PGE2) resulted in the complete loss of all deuterium atoms in dinor-PGE1, dinor-PGE2, and tetranor metabolites during incubation with hepatocytes. Metab. via classic .beta.-oxidn. pathways would predict one deuterium atom retained by dinor-PGE1 and two deuterium atoms retained by dinor-PGE2. When PGE2 was incubated with isolated rat hepatocytes in buffer contg. 30% D2O, substantial incorporation (30%) of one deuterium atom could be obsd. in the dinor metabolites along with 10% incorporation into the tetranor and residual PGE2. Deuterium-labeled PGE1 ([3,3,4,4-D4]PGE1) was metabolized to D2-dinor-PGE1, tetranor-PGE1, and the taurine conjugate of D2-dinor-PGE1 by isolated rat hepatocytes. The loss of deuterium during metab. of the deuterated substrates of PGE2, but not PGE1, as well as the incorporation of deuterium atoms from the aq. solvent into PGE2 metabolites suggested that the .DELTA.5 double bond and sequential isomerization reactions lead to eventual exchange of the protons from carbon atom 4 of PGE1 with water.

L4 ANSWER 22 OF 35 CAPLUS COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 1996:126956 CAPLUS
DOCUMENT NUMBER: 124:165445
TITLE: Rapid quantitation of a large scope of eicosanoids in two models of inflammation: development of an electrospray and tandem mass spectrometry method and application to biological studies
AUTHOR(S): Margalit, Alon; Duffin, Kevin L.; Isakson, Peter C.
CORPORATE SOURCE: Departments Inflammatory Diseases, Searle Research Development, St. Louis, MO, 63198, USA
SOURCE: Analytical Biochemistry (1996), 235(1), 73-81
CODEN: ANBCA2; ISSN: 0003-2697
PUBLISHER: Academic
DOCUMENT TYPE: Journal

LANGUAGE: English
AB Assessment of eicosanoid levels in biol. systems is important for understanding their role in cell function and pathophysiol. events. Current methods of eicosanoid quantitation are limited by sensitivity, scope, or throughput. The development of a new method for eicosanoid assessment in biol. samples by electrospray and tandem mass spectrometry (MS/MS) in the multiple reaction monitoring mode is described here. In this study, 14 biol. significant eicosanoids were quantitated in a single sample. Complete sample anal. required two repeated injections of 5 .mu.L with an anal. time of 1.5 min/injection. Limits of detection ranged from 0.5 pg for thromboxane B2 (TxB2) to 10 pg for 6-keto prostaglandin F1.alpha. (6-keto PGF1.alpha.). The reliability, reproducibility, sensitivity, and cross-detection of the method is also described. The MS/MS method was used to explore eicosanoid prodn. in two inflammation models: lipopolysaccharide (LPS)-stimulated human whole blood and carrageenan-challenged rat air pouch. The most abundant metabolites in LPS-stimulated while blood were prostaglandin E2 (PGE2), TxB2, and 6-keto PGF1.alpha.; prostaglandins E1, D2, and F2.alpha., and leukotrienes B4 and C4 were detected in lower amts. Eicosanoid levels detd. by MS/MS were similar to those obtained by immunoassay and GC-MS. The most abundant metabolites detected in carrageenan-challenged rat air pouch were PGE2, 6-keto PGF1.alpha., and TxB2. The method described in this work is accurate and rapid and should greatly aid in evaluating the role of multiple eicosanoids in future biol. studies.

L4 ANSWER 23 OF 35 CAPLUS COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 1994:528965 CAPLUS
DOCUMENT NUMBER: 121:128965
TITLE: "Tandem mass spectrometry in the structural analysis of lipids"
AUTHOR(S): *Le Quere, Jean-Luc*
CORPORATE SOURCE: Lab. de Rech. sur les Aromes, INRA, Dijon, 21034, Fr.
SOURCE: **Adv. Lipid Methodol. -- Two (1993), 215-45. Editor(s): Christie, William Walker. Oily Press: Dundee, UK.**
CODEN: 59ZHA2
DOCUMENT TYPE: Conference; General Review
LANGUAGE: English
AB A review with 71 refs. about concepts and principles of tandem mass spectrometry, instrumentation, and applications in the anal. of fatty acids, prostaglandins and other eicosanoids, triglycerides, phospholipids, and other complex lipids, etc.

L4 ANSWER 24 OF 35 CAPLUS COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 1994:208712 CAPLUS
DOCUMENT NUMBER: 120:208712
TITLE: "Determination of seven prostanoids in 1 mL of urine by gas chromatography-negative ion chemical ionization triple stage quadrupole mass spectrometry"
AUTHOR(S): *Schweer, Horst; Watzer, Hernhard; Seyberth, Hannsjoerg W.*
CORPORATE SOURCE: Child. Hosp., Philipps Univ., Marburg, D-35033, Germany
SOURCE: **Journal of Chromatography, B: Biomedical Sciences and Applications (1994), 652(2), 221-7**

CODEN: JCBBEP; ISSN: 1387-2273
DOCUMENT TYPE: Journal
LANGUAGE: English
AB In an isotope diln. assay, prostaglandin (PG) E2, 6-keto-PGF1.alpha., thromboxane (Tx) B2 and their metabolites PGE-M (11.alpha.-hydroxy-9,15-dioxo-2,3,4,5,20-pentanor-19-carboxyprostanoic acid), 2,3-dinor-6-keto-PGF1.alpha., 2,3-dinor-TxB2 and 11-dehydro-TxB2 were detd. in urine by gas chromatog.-triple stage quadrupole mass spectrometry (GC-MS-MS). After addn. of deuterated internal stds., the prostaglandins were derivatized to their methoximes and extd. with Et acetate-hexane. The sample was further derivatized to the pentafluorobenzyl esters and purified by thin-layer chromatog. (TLC). Three zones were scraped from the TLC plate. The prostanoid derivs. were converted to their trimethylsilyl ethers and the products were quantified by GC-MS-MS. In each run, two or three prostanoids were detd.

L4 ANSWER 26 OF 35 CAPLUS COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 1993:555262 CAPLUS
DOCUMENT NUMBER: 119:155262
TITLE: Collision-induced dissociation of F2-isoprostane-containing phospholipids
AUTHOR(S): Kayganich-Harrison, Kathleen A.; Rose, David M.; Murphy, Robert C.; Morrow, Jason D.; Roberts, L. Jackson, II
CORPORATE SOURCE: Dep. Pediatr., Natl. Jew. Cent. Immunol. Respir. Med., Denver, CO, 80206, USA
SOURCE: Journal of Lipid Research (1993), 34(7), 1229-35
CODEN: JLPRAW; ISSN: 0022-2275
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Free radical-induced lipid peroxidn. results in the prodn. of metabolites of arachidonic acid isomeric with prostaglandin F2.alpha.. The formation of these compds., termed F2-isoprostanes, occurs independent of the enzyme cyclooxygenase. The discovery that F2-isoprostanes can exert potential biol. activity has suggested that they may mediate, to some extent, the biol. responses to oxidant injury. Collision-induced dissocn. of the [M-CH3]- ions from oxidized phospholipids isolated by extn. and normal phase high performance liq. chromatog. from livers of rats treated with CCl4 to induce lipid peroxidn. revealed several mol. species of phospholipids that had the F2-isoprostane esterified to the glycerophosphocholine backbone. Collision-induced dissocn. of the [M-CH2CHN(CH3)3]- ion revealed that the F2- isoprostanes were primarily esterified at the sn-2-position of the glycerophospholipid as expected. Furthermore, tandem mass spectrometry of the carboxylate anion from the F2-isoprostane (m/z 353) resulted in the unique loss of 44 u characteristic of the 1,2-cyclic diol moiety such as that found in the PGF2-ring. These observations indicate that intact phospholipids contg. fatty acyl groups of the isoprostane structure can be readily detected with tandem mass spectrometry even when present as minor components in a biol. ext. Although no specific isomer identification can be made from the complex mixt., these techniques establish the existence of these novel metabolites of arachidonic acid esterified to glycerophospholipids.

L4 ANSWER 27 OF 35 CAPLUS COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 1991:178442 CAPLUS
DOCUMENT NUMBER: 114:178442
TITLE: Fast atom bombardment and collision-induced dissociation of prostaglandins and thromboxanes: some examples of charge remote fragmentation
AUTHOR(S): Zirrolli, Joseph A.; Davoli, Enrico; Bettazzoli, Laura; Gross, Michael; Murphy, Robert C.
CORPORATE SOURCE: Health Sci. Cent., Univ. Colorado, Denver, CO, 80206, USA
SOURCE: Journal of the American Society for Mass Spectrometry (1990), 1(4), 325-35
CODEN: JAMSEF; ISSN: 1044-0305
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The mass spectra of products found by collisional activation of selected prostaglandins and thromboxanes were studied by tandem mass spectrometry as barium carboxylate salts and as carboxylate anions. Collision-induced dissocn. (CID) of of these closed shell ions generated by fast atom bombardment mass spectrometry reveals a wealth of structural information for these hydroxy acids. Decompn. reactions were dependent upon the eicosanoid ring structure and the type of ion being studied, either pos. or neg. ion. The bariated carboxylate salts undergo reactions by processes that are similar to those previously characterized as charge remote mechanisms in which neutral species are host as in thermal and photolytic decompns. The most abundant ion is formed by loss of water from each of the hydroxyl groups present on the prostaglandin or thromboxane structure. For these multifunctionalized eicosanoids, typical patterns of decompn. emerge as characteristic of the oxygen substituents present along the carbon chain of the eicosanoid structure. The structural information obtained from the barium salts along with that from the carboxylate anions is substantially different, yet the structural information from each process is complementary. The CIDs of pos. ions (metalated salts) provide structural information concerning the substituents between the carboxyl group and C12 of the eicosanoid structure, whereas the decompns. of the carboxylate anions (neg. ion mode) provide data concerning structure alterations of the eicosanoid structure between C15 and C20.

L4 ANSWER 28 OF 35 CAPLUS COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 1991:136147 CAPLUS
DOCUMENT NUMBER: 114:136147
TITLE: Concepts for the determination of prostaglandins by tandem mass spectrometry
AUTHOR(S): Gillespie, Todd Allen
CORPORATE SOURCE: Univ. Florida, Gainesville, FL, USA
SOURCE: (1989) 186 pp. Avail.: Univ. Microfilms Int., Order No. DA9021201
From: Diss. Abstr. Int. B 1990, 51(3), 1226
DOCUMENT TYPE: Dissertation
LANGUAGE: English
AB Unavailable

L4 ANSWER 29 OF 35 CAPLUS COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 1990:245390 CAPLUS
DOCUMENT NUMBER: 112:245390
TITLE: Mass spectrometry
AUTHOR(S): Burlingame, A. L.; Millington, D. S.; Norwood, D. L.; Russell, D. H.
CORPORATE SOURCE: Liver Cent., Univ. California, San Francisco, CA, 94143-0446, USA
SOURCE: Analytical Chemistry (1990), 62(12), 268R-303R
CODEN: ANCHAM; ISSN: 0003-2700
DOCUMENT TYPE: Journal; General Review
LANGUAGE: English
AB A review with many refs. The following topics are covered: A. Overview; B. Scope; C. Innovative techniques and instrumentation; D. Tandem mass spectrometry; E. Unimol. dissocn. processes; F. Amino acids, peptides, proteins; G. Oligosaccharides and glycoconjugates; H. Drug metab. and pharmacol.; I. Toxicol.; J. Eicosanoids (e.g., prostaglandins); K. Biogenic amines (e.g. neurotransmitters); L. Steroids, sterols, bile acids; and M. Clin. medicine.

L4 ANSWER 30 OF 35 CAPLUS COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 1989:625396 CAPLUS
DOCUMENT NUMBER: 111:225396
TITLE: Simultaneous determination of the primary prostanoids prostaglandin E2, prostaglandin F2.alpha. and 6-oxoprostaglandin F1.alpha. by immunoaffinity chromatography in combination with negative ion chemical ionization gas chromatography-tandem mass spectrometry
AUTHOR(S): Mackert, Gerhard; Reinke, Margot; Schweer, Horst; Seyberth, Hannsjoerg W.
CORPORATE SOURCE: Universitaetskinderklin. Heidelberg, Heidelberg, 6900, Fed. Rep. Ger.
SOURCE: Journal of Chromatography (1989), 494, 13-22
CODEN: JOCRAM; ISSN: 0021-9673
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The simultaneous detn. of PGE2, PGF2.alpha., and 6-oxo-PGF1.alpha. in urine using immunoaffinity chromatog. in combination with neg. ion chem. ionization gas chromatog.-tandem mass spectrometry (NICI-GC-MS-MS) is described. Monoclonal antibodies against PGE2 (100% cross-reactivity with 6-oxo-PGF1.alpha.) and PGF2.alpha. were both coupled to a derivatized agarose matrix. After extn. with a C18 cartridge the sample was applied to the immunoaffinity column. The prostaglandins were eluted with acetone-water and the methoxime-pentafluorobenzyl- trimethylsilyl (MO-PFB-TMS) derivs. (PGE2 and 6-oxo-PGF1.alpha.) and the PFB-TMS deriv. (PGF2.alpha.) were quantified by GC-MS-MS. For reproducibility expts., spiked urine samples were analyzed several times. The correlation coeffs. were 0.997 (6-oxo-PGF1.alpha.) and 0.999 (PGE2 and PGF2.alpha.) and the slopes were 0.99 and 1.03, resp. The inter-assay relative std. deviation ranged 8.6-9.5% for the unspiked urine samples

and 2.0-5.2% for the spiked samples. This method offers several advantages, e.g., high specificity and sensitivity, good reproducibility and an increase in sample throughput.

L4 ANSWER 31 OF 35 CAPLUS COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 1989:625391 CAPLUS
DOCUMENT NUMBER: 111:225391
TITLE: Fragmentation of deuteromethanol from 3,3',4,4'-[2H4]-prostanoid pentafluorobenzylester/methoxime/trimethylsilylether derivatives by collisionally activated decomposition
AUTHOR(S): Mackert, Gerhard; Seyberth, Hannsjoerg W.; Schweer, Horst
CORPORATE SOURCE: Universitaetskinderklin., Heidelberg, D-6900, Fed. Rep. Ger.
SOURCE: Biomedical & Environmental Mass Spectrometry (1989), 18(10), 937-8
CODEN: BEMSEN; ISSN: 0887-6134
DOCUMENT TYPE: Journal
LANGUAGE: English
AB In neg. ion chem. ionization mass spectra of prostanoid pentafluorobenzyl ester (PFB)/methoxime (MO)/trimethylsilyl ether (TMS) derivs. [M-PFB]- is the most abundant fragment ion. Collisionally activated decompn. (CAD) spectra of this ion shows only fragmentation of trimethylsilanol (TMSOH), (CH3)2Si:CH2, CO2, and MeOH. CAD spectra of [M-PFB]- ions of 3,3',4,4'-deuterated PGE2 and 6-oxo-PGF1.alpha. PFB/MO/TMS derivs., fragmentation of MeOH and deuteroMeOH (CH3OD) is obsd. The ratio of CH3OH/CH3OD is .apprx.3:1 (PGE2) and 9:1 (6-oxo-PGF1.alpha.) resp. This loss of deuterium in the internal std. needs to be considered when employing the isotope diln. technique in quant. prostanoid anal. and tandem mass spectrometry.

L4 ANSWER 32 OF 35 CAPLUS COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 1989:490541 CAPLUS
DOCUMENT NUMBER: 111:90541
TITLE: "Tandem mass spectrometry of prostaglandins: a comparison of an ion trap and a reserved geometry sector instrument"
AUTHOR(S): *Strife, Robert J.; Kelley, Paul E.; Weber-Grabau, Michael*
CORPORATE SOURCE: Miami Valley Lab., Procter and Gamble Co., Cincinnati, OH, 45239-8707, USA
SOURCE: **Rapid Communications in Mass Spectrometry (1988), 2(6), 105-9**
CODEN: RCMSEF; ISSN: 0951-4198
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The detn. of prostaglandins by tandem mass spectrometry was performed with 2 different instruments, a reserved-geometry sector instrument and an ion-trap mass spectrometer. Ammonia-chem. ionization was used. Proposed initial structures for parent ions obtained with a PGE2 deriv. are given, as well as the daughter ion spectra and abundances. Relative advantages and disadvantages of the 2 types of instrument are discussed.

L4 ANSWER 33 OF 35 CAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1988:400914 CAPLUS
DOCUMENT NUMBER: 109:914
TITLE: Gas chromatography/mass spectrometry and gas chromatography/tandem mass spectrometry of methyl ester/methoxime/trimethylsilyl ether derivatives of prostaglandins
AUTHOR(S): Schweer, Horst; Seyberth, Hannsjorg W.; Meese, Claus O.
CORPORATE SOURCE: Universitaetskinderklin., Heidelberg, D-6900, Fed. Rep. Ger.
SOURCE: Biomedical & Environmental Mass Spectrometry (1988), 15(3), 129-38
CODEN: BEMSEN; ISSN: 0887-6134
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Electron-impact mass spectra of Me ester/trimethylsilyl ether derivs. of PGF2.alpha. and Me ester/methoxime/trimethylsilyl ether derivs. of PGE2, PGD2, 6-oxo-PGF1.alpha. and 2,3-dinor-6-oxo-PGF1.alpha. are presented. Most of the prostaglandins studied have addnl. been labeled with 2H at different sites in order to assign the corresponding fragment ions. Collisionally activated decompn. mass spectra of the most intense parent ions in the high-mass region were taken. High-intensity, prostaglandin-characteristic daughter fragments will allow a reliable quantification of prostaglandin in biol. fluids and a redn. of sample clean-up.

L4 ANSWER 35 OF 35 CAPLUS COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 1987:13050 CAPLUS
DOCUMENT NUMBER: 106:13050
TITLE: Determination of prostaglandin E2, prostaglandin F2.alpha. and 6-oxo-prostaglandin F1.alpha. in urine by gas chromatography/mass spectrometry and gas chromatography/tandem mass spectrometry: a comparison
AUTHOR(S): Schweer, Horst; Seyberth, Hannsjoerg W.; Schubert, Ralf
CORPORATE SOURCE: Universitaetskinderklin., Heidelberg, D-6900, Fed. Rep. Ger.
SOURCE: Biomedical & Environmental Mass Spectrometry (1986),13(11), 611-19
CODEN: BEMSEN; ISSN: 0887-6134
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Electron impact fragmentation of Me ester/methyloxime/trimethylsilyl ether derivs. of PGE2 [363-24-6] and 6-oxo-PGF1.alpha. [58962-34-8] and the Me ester/trimethylsilyl ether deriv. of prostaglandin F2.alpha. [551-11-1] is followed by Ar collision-activated dissocn. in a triple quadrupole mass spectrometer. Daughter ion chromatograms of prostaglandin derivs. show an enormous increase of selectivity compared to the multiple ion detection chromatograms of the same samples in single quadrupole mode.

L13 ANSWER 2 OF 9 CAPLUS COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 1995:366866 CAPLUS
DOCUMENT NUMBER: 122:329536
TITLE: Utility of matrix-assisted laser desorption/ionization time-of-flight mass spectrometry for the analysis of low molecular weight compounds
AUTHOR(S): Lidgard, Ray; Duncan, Mark W.

CORPORATE SOURCE: Biomed. Mass Spectrom. Unit, Univ. New South Wales, Sydney, 2052, Australia
SOURCE: Rapid Communications in Mass Spectrometry (1995), 9(2), 128-32
CODEN: RCMSEF; ISSN: 0951-4198
PUBLISHER: Wiley
DOCUMENT TYPE: Journal
LANGUAGE: English
AB A range of low mol. wt. compds. (<800 Da) were examd. by matrix-assisted laser desorption time-of-flight mass spectrometry to demonstrate the general anal. utility of this technique. The compd. classes studied included: carbohydrates, quaternary ammonium salts, sterols, nucleosides, purine and pyrimidine bases, amino acids, catecholamines, opioids, antibiotics, prostaglandins and a range of macrocyclic metal complexes of porphyrins and phthalocyanines. Many of the compds. tested are of the biochem., geochem., industrial and/or therapeutic interest. Most org. analytes gave intense protonated mols., but some were characterized by sodium adduct ions (i.e., [M + Na]+). The metal-contg. compds. formed radical-cation mol. ions. In all instances the ions detected could be assigned, and excellent agreements between calcd. and exptl. mass values were obtained.

L13 ANSWER 4 OF 9 CAPLUS COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 1987:678 CAPLUS
DOCUMENT NUMBER: 106:678
TITLE: "Ammonia (NH3 and N2H3) direct chemical ionization mass spectrometry of underivatized prostaglandin-H2 and other selected stable prostaglandins"
AUTHOR(S): *Schilling, A. B.; Zulak, I. M.; Puttemans, M. L.; Hall, E. R.; Venton, D. L.*
CORPORATE SOURCE: Coll. Pharm., Univ. Illinois, Chicago, IL, 60612, USA
SOURCE: **Biomedical & Environmental Mass Spectrometry (1986), 13(10), 545-51**
CODEN: BEMSEN; ISSN: 0887-6134
DOCUMENT TYPE: Journal
LANGUAGE: English
AB A study of the pos. and neg. ion, ammonia (NH3 and N2H3) direct chem. ionization mass spectrometry of highly purified prostaglandin endoperoxide (PGH2 [42935-17-1]) is presented. The pos. ion spectra were characterized by an intense [M + NH4]+ adduct at m/z 370 and several fragment ions, most notably a [M + NH4 - H2O]+ ion at m/z 352 and an ion at m/z 298, assigned as the [M + NH4 - 72]+ ion of 12-hydroxy-5,8,10-heptadecatrienoic acid [81370-32-3] formed from PGH2 in the spectrometer. The neg. ion spectra of PGH2 were characterized by a base peak at m/z 352 [M]- and by an ion at m/z 334 corresponding to the loss of water from the parent ion. A combination of neg. ion and N2H3 reagent gas was used in making assignments and in demonstrating that the spectra obsd. were due to intact PGH2 and its stable PGE2 [363-24-6] and PGD2 isomers formed in the spectrometer. In addn., use of the latter reagent gas clearly distinguished between several arachidonic acid metabolites, differing in their no. of exchangeable protons. Furthermore, preliminary results with several stable prostaglandins indicate that the spectra are sensitive to different functional groups that are present. Consequently, it would appear that neg. and pos. ion, NH3 (N2H3) direct chem.

ionization mass spectrometry would be useful in the anal. of labile arachidonic acid metabolites, without the need for prior derivatization.

L13 ANSWER 5 OF 9 CAPLUS COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 1978:525503 CAPLUS
DOCUMENT NUMBER: 89:125503
TITLE: "Mass spectral studies. VIII. Some aspects of chemical ionization mass spectroscopy using ammonia as reagent gas: a valuable technique for biomedical and natural products studies"
AUTHOR(S): *Bose, Ajay K.; Fujiwara, Hideji; Pramanik, Birendra N.; Lazaro, Eric; Spillert, Charles R.*
CORPORATE SOURCE: Dep. Chem. Chem. Eng., Stevens Inst. Technol., Hoboken, NJ, USA
SOURCE: **Analytical Biochemistry (1978), 89(1), 284-91**
CODEN: ANBCA2; ISSN: 0003-2697
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The use of NH3 as reagent gas increases considerably the utility of chem.-ionization mass spectroscopic (ci-ms) anal.: compds. of biol. interest, such as steroid hormones, bile acids, prostaglandins, phospholipids, alkaloids, antibiotics, etc., display strong pseudomol. ions (mostly M+ + 18). The need for derivatization and(or) chromatog. purifn. of many types of compds. is reduced sharply. (NH4)2CO3 or 15NH4Cl can be introduced into the direct probe for obtaining satisfactory ci-ms(NH3) spectra. Bile salts and some bile acid conjugates can be studied without derivatization. K penicillanate gives a strong peak corresponding to the free acid + NH4+. Deproteinized blood samples provide a detailed picture of individual components, such as triglycerides, lysolecithins, cholesterol esters, etc. Fragmentation patterns for structural information can be generated by adding Ar to NH3. One shortcoming of the ci-ms(NH3) method is the progressive replacement of halogen with H.

L13 ANSWER 6 OF 9 CAPLUS COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 1978:27742 CAPLUS
DOCUMENT NUMBER: 88:27742
TITLE: "Stability of prostaglandin E1 and dinoprostone (prostaglandin E2) under strongly acidic and basic conditions"
AUTHOR(S): *Stehle, R. G.; Oesterling, T. O.*
CORPORATE SOURCE: Pharm. Res., Upjohn Co., Kalamazoo, MI, USA
SOURCE: **Journal of Pharmaceutical Sciences (1977), 66(11), 1590-5**
CODEN: JPMSAE; ISSN: 0022-3549
DOCUMENT TYPE: Journal
LANGUAGE: English
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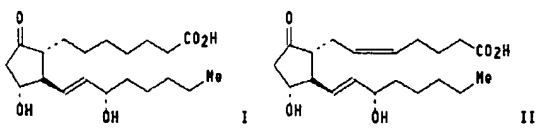

AB The stability of prostaglandin E1 (I) [745-65-3] and dinoprostone (II) [363-24-6] was investigated at the extremes of the pH range (.ltoreq.3 and .gtoreq.10) in the sequence prostaglandin E .fwdarw. prostaglandin A .fwdarw. prostaglandin B. The degrdn. rate is first order with hydrogen-ion and hydroxide-ion concns. Sepn. and anal. of the E prostaglandins were accomplished by TLC and UV spectrophotometry . At the lowest pH values and at elevated or low temps., significant amts. of 15-epiprostaglandin E were present. Apparent activation energies for the total II loss, calcd. from elevated temp. data, were 21 kcal/mol in the strongly acidic region and about 18 kcal/mol at pH 3. Corresponding studies in the alk. region led to a derived Arrhenius activation energy of 15 kcal/mol with the appearance of significant amts. of 8-isoprostaglandin E. This difference in activation energies may reflect the different mechanisms operant at high and low pH values.

L19 ANSWER 2 OF 21 CAPLUS COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 1997:685917 CAPLUS
DOCUMENT NUMBER: 127:343553
TITLE: Rapid simultaneous analysis of prostaglandin E2, 12-hydroxyeicosatetraenoic acid and arachidonic acid using high performance liquid chromatography/electrospray ionization mass spectrometry
AUTHOR(S): Newby, Craig S.; Mallet, Anthony I.
CORPORATE SOURCE: St. John's Instutute of Dermatology, UMDS, St. Thomas' Hospital, University of London, London, SE1 7EH, UK
SOURCE: Rapid Communications in Mass Spectrometry (1997), 11(15), 1723-1727
CODEN: RCMSEF; ISSN: 0951-4198
PUBLISHER: Wiley
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Arachidonic acid (AA) can be metabolized to a variety of lipid mediators including prostaglandins (PGE), and hydroxyeicosatetraenoic acids (HETE) by cydooxygenase, lipoxygenase and cytochrome P 450-dependent monooxygenase enzymic pathways. Traditional exptl. procedures to quantify these lipid mediators require purifn., often by high performance liq. chromatog. (HPLC), prior to derivatization for gas chromatog./mass spectrometry (GC/MS) anal. A rapid and simple technique for the simultaneous quant. anal. of PGE2, 12-HETE, and AA by HPLC/electrospray ionization mass spectrometry on cultured human dermal fibroblast supernatants was described. Extension of the method to analyze 5-HETE and 15-HETE was investigated. The advantages of this method include minimal sample prepn. and elimination of the problem assocd. with thermal stability for GC/MS anal. A detection limit of 20 pg on column for PGE2 and 5 pg on column for 12-HETE and AA was detd.

L19 ANSWER 4 OF 21 CAPLUS COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 1988:49397 CAPLUS
DOCUMENT NUMBER: 108:49397
TITLE: Profiling prostaglandins, thromboxanes and hydroxy fatty acids using stable isotope dilutions and gas chromatography-mass spectrometry

AUTHOR(S): Gleispach, Helmut; Malle, Ernst; Dadak, Christian; Hohenester, Erhard; Wurm, Helmut; Leis, Hans Joerg
CORPORATE SOURCE: Inst. Physiol., Univ. Graz, Graz, A-1090, Austria
SOURCE: Progress in Clinical and Biological Research (1987), 242(Prostaglandins Clin. Res.), 7-12
CODEN: PCBRD2; ISSN: 0361-7742
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Arachidonate metabolites are detected by a combination of stable isotope diln. and gas chromatog.-mass spectrometry using selected ion monitoring. The method presented displays high precision, high sensitivity, and a simple and rapid work up procedure combined with the ability to be easily adapted for a variety of biol. media. The accuracy is given by (1) a high no. of sep. steps, (2) gas chromatog. retention time, (3) labeled internal std., and, (4) mass specific detection.

L19 ANSWER 5 OF 21 CAPLUS COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 1988:693 CAPLUS
DOCUMENT NUMBER: 108:693
TITLE: Measurement of prostaglandins, thromboxanes and hydroxy fatty acids by stable isotope dilution gas chromatography/mass spectrometry
AUTHOR(S): Leis, H. J.; Hohenester, E.; Gleispach, H.; Malle, E.; Mayer, B.
CORPORATE SOURCE: Dep. Mass Spectrom., Univ. Kinderklin., Graz, A-8036, Austria
SOURCE: Biomedical & Environmental Mass Spectrometry (1987), 14(11), 617-21
CODEN: BEMSEN; ISSN: 0887-6134
DOCUMENT TYPE: Journal
LANGUAGE: English
AB A method for measurement of PGF2.alpha., PGE1, PGE2, 6-oxo-PGF1.alpha. TXB2, 2,3-dinor-TXB2, as well as 5-, 8-, 9-, 11-, 12-, 15-HETE, and 12S-hydroxy-5,8,10-(Z,E,E)-heptadecatrienoic acid, utilizing neg. ion chem. ionization gas chromatog./mass spectrometry (GC/MS) is presented. A highly efficient sepn. and purifn. procedure prior to the derivatization sequence allows quantification of the arachidonic acid metabolites describe in 2 GC/MS runs. The detection limit was in the femtomole range. Application of the method to the quant. profile of arachidonic acid metabolites in various tissues and incubation media is demonstrated.

L19 ANSWER 6 OF 21 CAPLUS COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 1987:470852 CAPLUS
DOCUMENT NUMBER: 107:70852
TITLE: Application of GCMS techniques to the analysis of prostaglandins and related substances
AUTHOR(S): Pace-Asciak, C. R.
CORPORATE SOURCE: Dep. Neurosci., Hosp. Sick Child., Toronto, ON, M5G 1X8, Can.
SOURCE: Journal of Chromatography Library (1987), 37(Chromatogr. Lipids Biomed. Res. Clin. Diagn.), 107-27

CODEN: JCLIDR; ISSN: 0301-4770
DOCUMENT TYPE: Journal; General Review
LANGUAGE: English
AB A review, with 29 refs., of the detn. of prostaglandins and total arachidonate metabolites in body fluids and tissues by gas chromatog. and mass spectroscopy (GCMS).

L19 ANSWER 7 OF 21 CAPLUS COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 1986:15225 CAPLUS
DOCUMENT NUMBER: 104:15225
TITLE: Qualitative and quantitative measurement of hydroxy fatty acids, thromboxanes and prostaglandins using stable isotope dilutions and detection by gas chromatography-mass spectrometry
AUTHOR(S): Gleispach, H.; Moser, R.; Mayer, B.; Esterbauer, H.; Skriletz, U.; Zierman, L.; Leis, H. J.
CORPORATE SOURCE: Dep. Paediatr., Univ. Graz, Graz, Austria
SOURCE: Journal of Chromatography (1985), 344, 11-21
CODEN: JOCRAM; ISSN: 0021-9673
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Methods for detg. the metabolites of arachidonic acid (AA) [prostaglandins (PGs), thromboxanes (TXs), and hydroxy fatty acids] using stable isotope diln. and gas chromatog.-mass spectrometry are described. [2H8]AA, produced by deuteration of eicosatetraynoic acid, was used for comparing the metab. of exogenously added and endogenously present AA in fibroblast cultures. After derivatization and catalytic hydrogenation, structure elucidation and quantification of the different hydroxy fatty acids was carried out by detn. of the fragment ions resulting from .alpha.-cleavage at the site of the hydroxy function. During catalytic hydrogenation a H-2H exchange was obsd. To eliminate this problem, 18O-labeled stds. were prepd. by exchanging the O of the carboxylic acid group. The prepn. and the use of hydroxy fatty acids, PGs, and TXs labeled with 18O is described.

L19 ANSWER 10 OF 21 CAPLUS COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 1985:40011 CAPLUS
DOCUMENT NUMBER: 102:40011
TITLE: Determination of leukotrienes and prostaglandins in [14C]arachidonic acid labeled human lung tissue by high-performance liquid chromatography and radioimmunoassay
AUTHOR(S): Zijlstra, Frederik J.; Vincent, J. Eric.
CORPORATE SOURCE: Med. Fac., Erasmus Univ. Rotterdam, Rotterdam, 3000 DR, Neth.
SOURCE: Journal of Chromatography (1984), 311(1), 39-50
CODEN: JOCRAM; ISSN: 0021-9673
DOCUMENT TYPE: Journal
LANGUAGE: English

AB A liq. chromatog. method for the detn. of 14C-labeled prostaglandins, leukotrienes, and other lipoxygenase products formed by human lung tissue is described. Leukotrienes and related compds. were detd. by reversed-phase HPLC on a Nucleosil 5 C18 column with a mobile phase of THF-MeOH-H2O-HOAc (25:30:45:0.1), pH 5.5 at 37.degree. and fractions were collected for scintillation counting. Prostaglandins were detd. on a Zorbax C8 column with a mobile phase of MeCN-benzene-H2O-HOAc (24:0.2:0.1:76) and fractions were analyzed by RIA and 14C and 3H counting. Problems are reported in identifying these substances when 3H- or 14C-labeled compds. are compared with measurements of the mass by absorption or RIA. Some preliminary results of 14C-labeled arachidonic acid [506-32-1]-labeled human lung tissue, stimulated by the Ca-ionophore A23187, showed that, of the lipoxygenase products, mostly LTB4 [71160-24-2]-like compds. were formed with less LTC4 [72025-60-6], LTE4 [75715-89-8], and LTD4 [73836-78-9]. Relatively large amts. of hydroxyeicosatetraenoic acids were present. The main cyclooxygenase products were TXB2 [54397-85-2], 6-keto-PGF1.alpha. [58962-34-8], and PGD2 [41598-07-6].

L19 ANSWER 16 OF 21 CAPLUS COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 1980:37118 CAPLUS
DOCUMENT NUMBER: 92:37118
TITLE: High-efficiency glass capillary column gas chromatography and gas chromatography-mass spectrometry of oxygenated metabolites of arachidonic acid (hydroxylated fatty acid, prostaglandins and thromboxanes)
AUTHOR(S): Rigaud, M.; Chebroux, P.; Soustre, A.; Durand, J.; Rabinovitch, H.; Breton, J. C.
CORPORATE SOURCE: Dep. Biochem., Med. Univ., Limoges, 87000, Fr.
SOURCE: Advances in Chromatography (Houston) (1979), 14th, 615-24
CODEN: ACMGBR; ISSN: 0270-773X
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The sepn., identification, and quant. detn. of prostaglandins F2.alpha., D2, E2, 6-keto prostaglandin F1.alpha., thromboxane B2 and 12-hydroxy-5,8,10,14-eicosa-tetraenoic acid (I) from biol. exts. (human blood platelets and mouse peritoneal macrophages) are described. Details of the prepn. and the coating of glass capillary tubes are reported. Forty columns are described. Derivatization and the use of high-efficiency glass capillary columns, made it possible, however, to perform simultaneous detns. of cyclooxygenase products by multiple ion detection, on a rather crude ext. The specificity of the assay is enhanced by the gas chromatog. method. The reproducibility of the detn. of Kovats retention indexes for 24 synthetic prostaglandins is reported. The calibration curves for the quant. detn. of prostaglandins E1 and E2 show the enhanced sensitivity of the glass capillary column method. Injected amts. of 0.08 pmol of prostaglandin E could be quantified. Results are more striking for I because of its electron impact fragmentation.

L19 ANSWER 20 OF 21 CAPLUS COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 1965:16418 CAPLUS
DOCUMENT NUMBER: 62:16418

ORIGINAL REFERENCE NO.: 62:2995d-e
TITLE: Prostaglandins and related factors. XXVI. Identification of prostaglandin F3.alpha. in bovine lung
AUTHOR(S): Samuelsson, Bengt
CORPORATE SOURCE: Karolinska Inst., Stockholm
SOURCE: Biochimica et Biophysica Acta (1964), 84(6), 707-13
CODEN: BBACAQ; ISSN: 0006-3002
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Prostaglandin F3.alpha. was isolated from bovine lung by reversed-phase partition chromatography, silicic acid chromatography, and thin-layer chromatography. Final identification was achieved by gas-liquid chromatography of a trimethylsilyl ether deriv., ir spectroscopy, and mass spectrographic analysis. The stereochemistry at C-9 was detd. by an isotope technique. Prostaglandin F2.alpha., earlier isolated from lung tissue of other species, was also identified.